

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

By the foregoing amendment, claims 1, 5, 13, and 20 have been amended, claim 19 has been canceled without prejudice or disclaimer for filing in a continuation application, and new claim 21 added. Thus, claims 1-18 and 20-21 are currently pending in the application and subject to examination.

In the Office Action mailed May 5, 2004, the Examiner indicated that claims 17 and 18 were allowed, and that claims 11 and 12 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. The Examiner is respectfully thanked for indicating the allowable subject matter.

The Examiner rejected claim 19 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,661,451 to Kijima, et al. Under 35 U.S.C. § 103(a), the Examiner rejected claims 1, 13, and 20 as being unpatentable over U.S. Patent No. 5,287,192 to Iizuka in view of U.S. Patent No. 6,198,507 to Ishigami, rejected claims 2-4 and 14-16 as being unpatentable over Iizuka in view of Ishigami as applied to claims 1 and 13, and further in view of Kijima, and rejected claims 5-10 as being unpatentable over Iizuka in view of Ishigami as applied to claim 1, and further in view of U.S. Patent No. 5,920,346 to Nakashiba. It is noted that 1, 5, 13, and 20 have been amended and claim 19 has been

canceled. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections, as follows.

The Examiner states that "Iizuka differs from claim 1 in that claim 1 further requires the addition means to add electric charges transferred from two or more of the vertical charge transfer paths, on the horizontal charge transfer path." Office Action at page 5.

With regard to claim 1, the Applicant submits Ishigami discloses, for example in FIG. 12A, combined electric charges in the first row of all vertical charge transfer paths simultaneously transferred to the horizontal charge transfer path. In FIG. 12B, Ishigami shows the combined electric charges transferred from the first row and then moved two pitches along the horizontal charge transfer path. In FIG. 12C, Ishigami shows the combined electric charges in a second row of all of the vertical charge transfer paths simultaneously transferred to the horizontal charge transfer path.

The Applicant respectfully submits that none of the cited prior art discloses or suggests at least the combination of limitations of a horizontal addition means for adding electric charges transferred from two or more of said plurality of vertical charge transfer paths, on said horizontal charge transfer path, by controlling said transfer gate and said horizontal charge transfer path to selectively transfer electric charges from a first row of each of a *first subset* of said plurality of vertical charge transfer paths to said horizontal charge transfer path, transfer the electric charges on said horizontal charge transfer path to the downstream side of the horizontal path in the horizontal direction, and transfer electric charges from the first row of

each of a *second subset* of said plurality of vertical charge transfer paths on the downstream side to said horizontal charge transfer path, *wherein a first number of said plurality of vertical charge transfer paths included in said first subset of said plurality of vertical charge transfer paths is greater than zero, and a second number of said plurality of vertical charge transfer paths included in said second subset of said plurality of vertical charge transfer paths is greater than zero*, as claimed in claim 1, as amended. For at least this reason, the Applicant submits that claim 1, as amended, is allowable over the cited prior art.

As claim 1, is allowable, the Applicant submits that claims 2-12, which depend from allowable claim 1, are likewise allowable over the cited prior art.

Similarly to as discussed above with regard to claim 1, Applicants submit that claim 13, as amended, is allowable over the cited prior art at least because the cited prior art does not disclose or suggest at least the combination of limitations of (d) transferring each combined electric charge positioned in the first row for each of a first subset of the plurality of vertical charge transfer paths to the horizontal charge transfer path, wherein the first subset of the plurality of vertical charge transfer paths includes a number of vertical charge transfer paths that is greater than zero; (e) transferring the combined electric charges transferred in step (d) on the horizontal charge transfer path to a downstream side in the horizontal direction; and (f) transferring each combined electric charge positioned in the first row for each of a second subset of the plurality of vertical charge transfer paths to the horizontal charge transfer path and adding the combined electric charges transferred from the second subset of the plurality of vertical charge transfer paths

to the combined electric charges transferred from the first subset of the plurality of vertical charge transfer paths, wherein the second subset of vertical charge transfer paths includes a number of vertical charge transfer paths that is greater than zero, as claimed in claim 13, as amended. For at least this reason, the Applicant submits that claim 13, as amended, is allowable over the cited prior art.

As claim 13, is allowable, the Applicant submits that claims 14-16, which depend from allowable claim 13, are likewise allowable over the cited prior art.

Also similarly to as discussed above with regard to claim 1, Applicants submit that claim 20, as amended, is allowable over the cited prior art at least because the cited prior art does not disclose or suggest at least the combination of limitations of a horizontal charge transfer path, wherein a charge transfer end corresponding to the first row of each of the plurality of vertical charge transfer paths is coupled to the horizontal charge transfer path, wherein each of the first combined electric charges in the plurality of vertical charge transfer paths is positioned in the first row of the corresponding one of the plurality of vertical charge transfer paths, wherein the at least one controller further generates a third combined electric charge and a fourth combined electric charge within the horizontal charge transfer path by selectively transferring the first combined electric charge for a first one of the plurality of vertical charge transfer paths and the first combined electric charge for a second one of the plurality of vertical charge transfer paths to the horizontal charge transfer path, moving the first combined electric charge for the first one of the plurality of vertical charge transfer paths and the first combined electric charge for the second one of the plurality of

vertical charge transfer paths in a predetermined direction within the horizontal charge transfer path, and adding the first combined electric charge for a third one of the plurality of vertical charge transfer paths and the first combined electric charge for a fourth one of the plurality of vertical charge transfer paths to the first combined electric charge for the first one of the plurality of vertical charge transfer paths and the first combined electric charge for the second one of the plurality of vertical charge transfer paths, respectively, to generate the third combined electric charge and the fourth combined electric charge, respectively, as claimed in claim 20, as amended. For at least this reason, the Applicant submits that claim 20, as amended, is allowable over the cited prior art.

As claim 20, is allowable, the Applicant submits that claim 21, which depends from allowable claim 20, is likewise allowable over the cited prior art.

With regard to each of the rejections under §103 in the Office Action, it is also respectfully submitted that the Examiner has not yet set forth a *prima facie* case of obviousness. The PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 U.S.P.Q.2nd 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the

relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002).

In the Office Action, the Examiner merely states that it would have been obvious to combine the cited references so as to accomplish the advantages of the present invention. See, e.g., Office Action at pages 6, 9, 11, 12, and 14-15. This is an insufficient showing of motivation.

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300. The Commissioner is

Kazuhiro KAWASHIRI

Serial No.: 09/588,552
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hereby authorized to charge any fee deficiency or credit any overpayment
associated with this communication to Deposit Account No. 01-2300.

Respectfully submitted,

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